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EXAMINER

KANG, JULIANA K

ART UNIT PAPER NUMBER

2874

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/006,933 | Applicant(s) PSALTIS ET AL. | |
| | Examiner Juliana K. Kang | Art Unit 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 6, 8-14 and 16-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-34 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 8-14, 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. The petition filed under 37 C.F.R. 1.137(b) filed January 25, 2005 to revive the application has been granted.

Applicant's amendment and response filed on January 25, 2005 has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendments made to the claims, are not persuasive and the rejections based upon prior art made of record in the previous office action are hereby maintained. This action is made final.

Claims 1-3, 5, 6, 8-14 and 16-34 are pending in the application. Claims 23-34 are now allowable and claims 1-3, 5, 6, 8-14 and 16-22 are rejected.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 10 are still rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has not over come all the rejections stated in the previous Office action. Claim 9 recites the limitations "said optical fiber collimator." There are insufficient antecedent bases for these limitations in the claims. There are three different optical fiber collimators, an input optical fiber collimator, a drop optical fiber collimator, and a through optical fiber collimator, and it is not clear which optical fiber collimator "said optical fiber collimator" is referring.

Claim Objections

3. Claim 6 is objected to because of the following informalities: Claims reciting the term "a holograph filter material" have been amended to "a holographic filter." However, claim 6 still recites "a holographic filter material." Please amend claim 6 to recite "said holographic filter" in order to be consistent with the rest of claims.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5, 6, 8-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima (U.S. Patent 6,246,818 B1), and further in view of Cormack (U.S. Patent 6,587,608 B2) as best understood by the Examiner with rejections/objections stated above and in the previous Office action.

Regarding claims 1-3, and 6, Fukushima disclose a tunable optical drop filter comprising a quasi phase-conjugate optical system comprising a lens (52) and a mirror (54) which is optically coupled to a tunable filter (28), an input optical fiber (22A), drop optical fiber (22C), a through optical fiber (48); and a free space circulator (22) optically coupled to the input fiber, drop optical fiber, and the filter. Fukushima further teaches

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collimated optical beams. However, Fukushima does not teach that the filter is a holographic filter. Cormack teaches a tunable drop filter wherein the filter divides the input beam into a drop beam and a pass beam. Cormack further teaches the tunable filter can be any of known filters including a holographic Bragg grating that can be rotated (see column 9 lines 17 and 27). Thus, one with ordinary skill in the art would easily recognized the use of any known filter a holographic filter in Fukushima as taught by Cormack as long as the filter drops and passes a WDM signal.

Regarding claim 5, Fukushima teaches a WDM input signal (see column 5 line 18).

Regarding claims 8-14, Fukushima and Cormack teach the claimed limitations including a quasi phase-conjugate diffracted beam of light, reflecting the diffracted light back to the filter retracing the input path identically, a holographic Bragg grating and the circulator to drop the diffracted signal (see especially column 2 lines 43-53 of Fukushima).

Regarding claims 16 and 17, as described above Fukushima and Cormack teach the claimed invention. Fukushima further teaches a first mirror (54) coupled to the free space circulator and an optical system (36).

Regarding claims 18 and 19, Fukushima and Cormack teach rotating the holographic drop filter to tune the filter to drop and pass the SEM signal (see Cormack column 9 line 27).

Regarding claim 22, use of a photorefractive crystal for a hologram is well known in the art.

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6. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima and Cormack as applied to claim 16 above, and further in view of Domash (U.S. Patent 5,937,115).

As described above, Fukushima and Cormack teaches the claimed invention except that the holographic drop filter that has a refractive index that can be altered by an external electric field. Domash teaches using hologram Bragg gratings (filter) that are electronically switchable to adjust the diffraction with great efficiency by altering the refractive index (see column 8 lines 15-42). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use electronically switchable hologram Bragg gratings in Fukushima and Cormack as taught by Domash to adjust the diffraction with efficiency. Since the refractive index of the hologram Bragg gratings (filter) can be altered by an external electrical field, any reasonable refractive index including the claimed refractive index range would have been obvious to one having ordinary skill in the art at the time the invention was made as long as an optical diffraction occurs for a desired application.

Response to Arguments

7. Applicant argues that nowhere in both Fukushima and Cormack do the words "quasi" or "phase-conjugate optical system" appear. The Examiner agrees with applicant that both references do not use the exact term "quasi" or "phase-conjugate optical system." However, the Fukushima reference teaches a quasi phase-conjugate optical system comprising the combination of a lens and a mirror wherein reflected light

from the reflecting unit travels back the same optical path as that of incident light irrespective of an angle of incidence on the reflecting unit so that there is no possibility that the characteristic of the optical fiber member may be changed by an angular deviation of the optical fiber member (see column 2 lines 44-61 also note applicant's description of a quasi phase-conjugate optical system in page 4 lines 18-22). Thus, even though the Fukushima reference does not use the exact term "quasi phase conjugate" the Fukushima reference teaches a quasi phase-conjugate optical system.

Applicant also argues that claim 16 should be allowable based on the allowability of claim 23. The Examiner does not agree with this. Claim 23 has been indicated as allowable claim based on the claimed structure that is narrower than the structure recited in claim 16. Thus, claim 16 whose limitations are broader than claim 23 cannot be allowed based on the allowability of claim 23.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Mon. & Fri. 10:00-6:00 and Tue. & Thur. 10:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JULIANA KANG
PRIMARY EXAMINER 4/18/05